Fig. 1

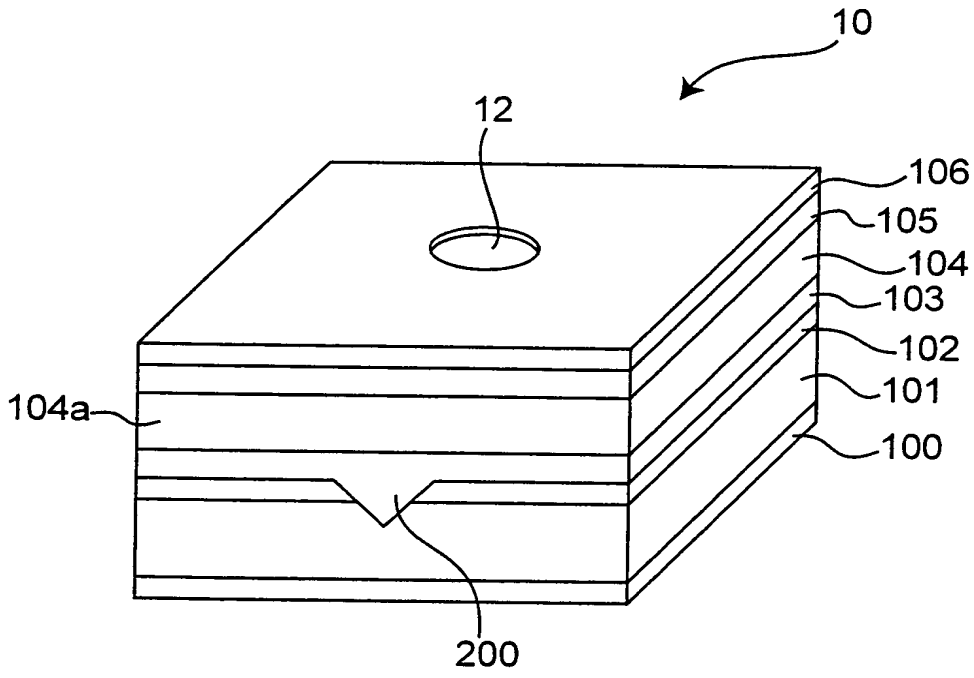

Fig.2A

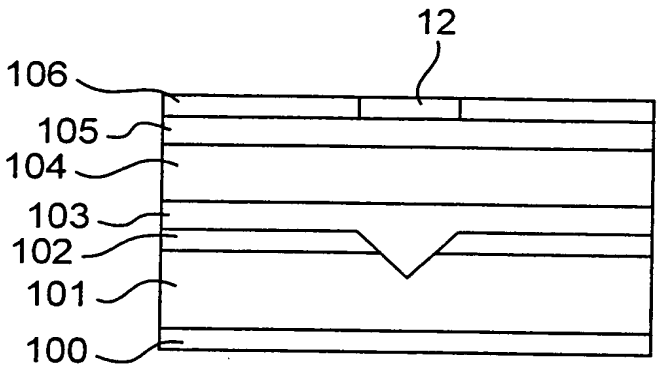
12
106
105
104
103
102
101
100

Fig.2B

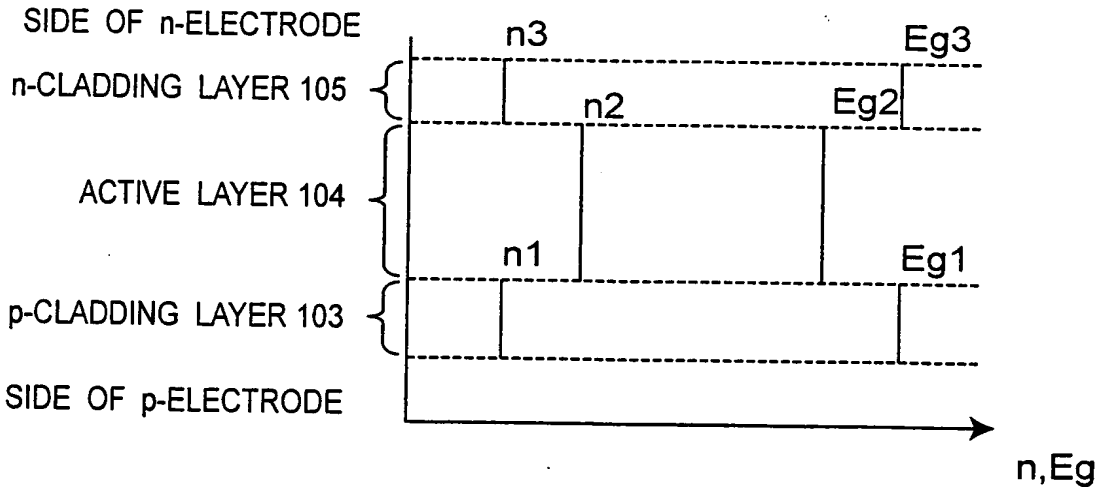
SIDE OF n-ELECTRODE
n-CLADDING LAYER 105
ACTIVE LAYER 104
p-CLADDING LAYER 103
SIDE OF p-ELECTRODE
n3
Eg3
n2
Eg2
n1
Eg1
n,Eg

Fig.3

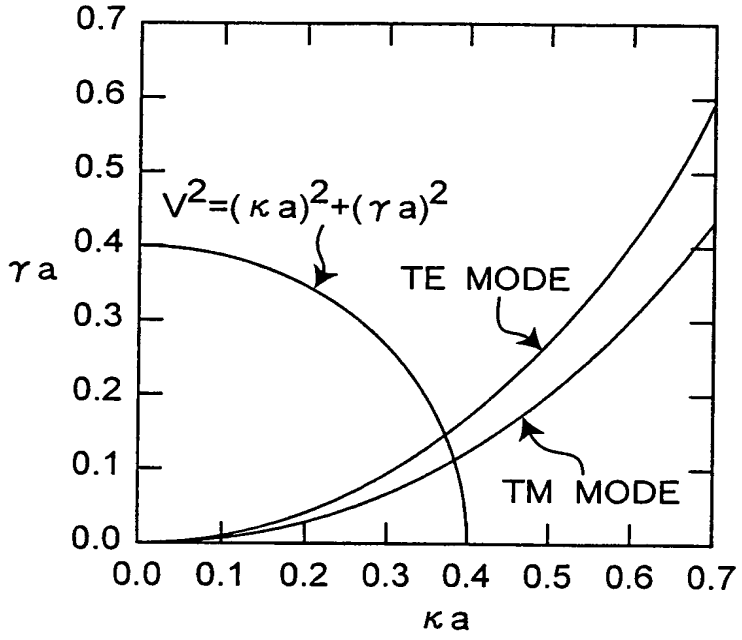
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
γa
V²=(κa)²+(γa)²
TE MODE
TM MODE
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7
κa

Fig.4A

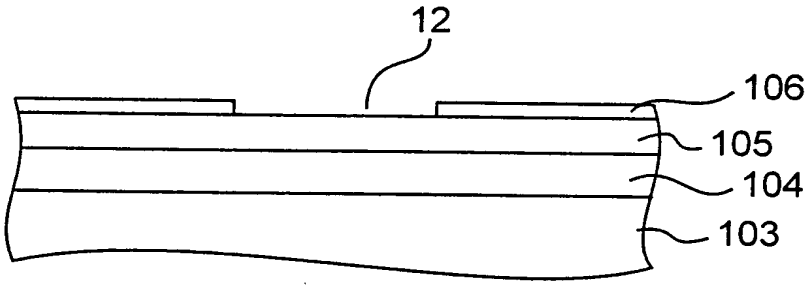

Fig.4B

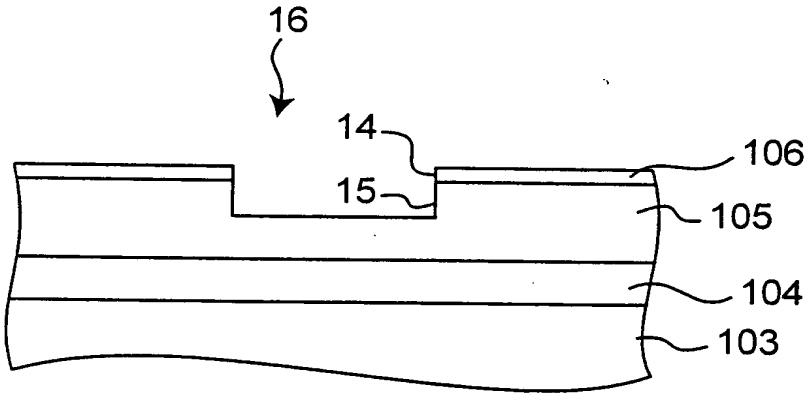

Fig.5A

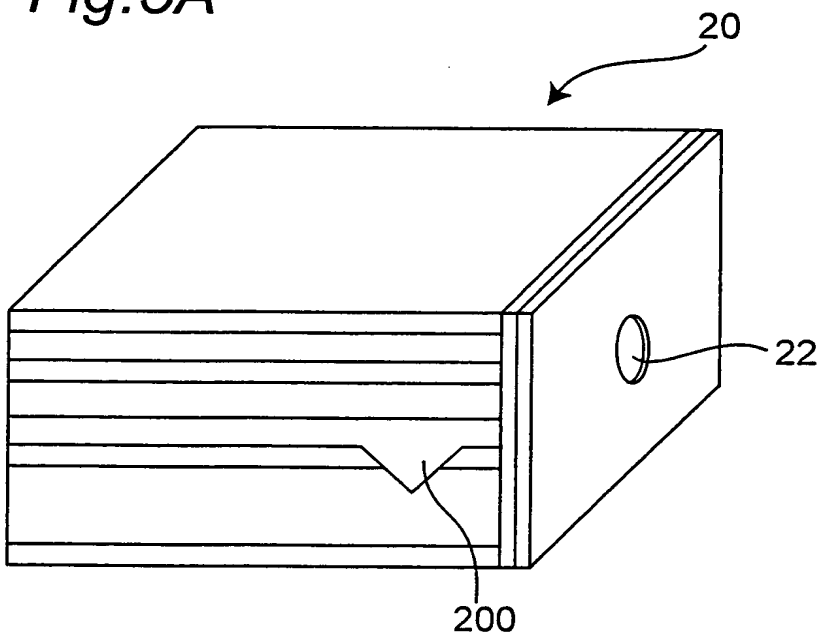

Fig.5B

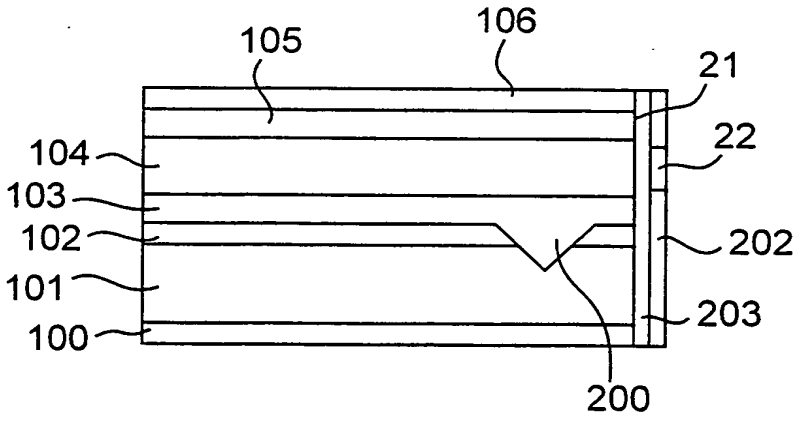

Fig.6A

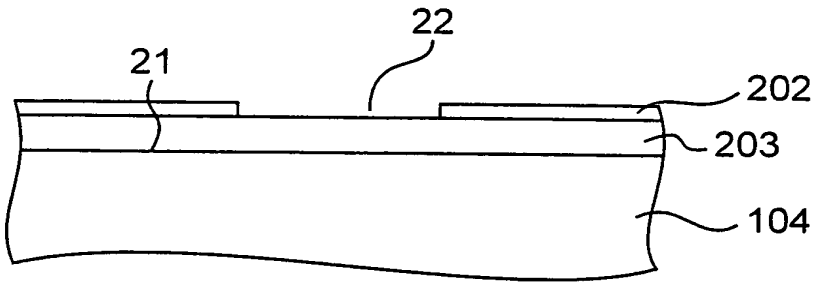

Fig.6B

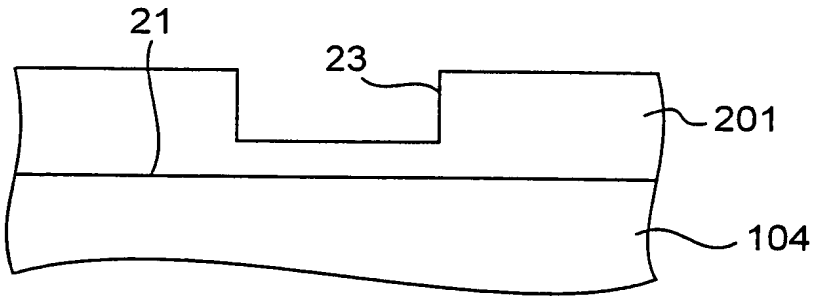

Fig.7A

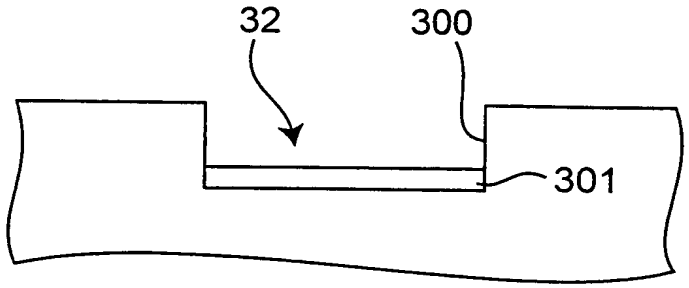

Fig.7B

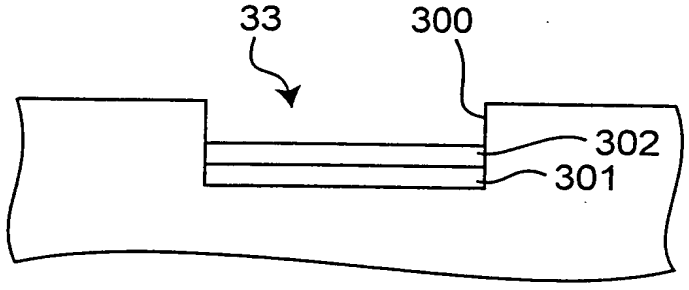

Fig.7C

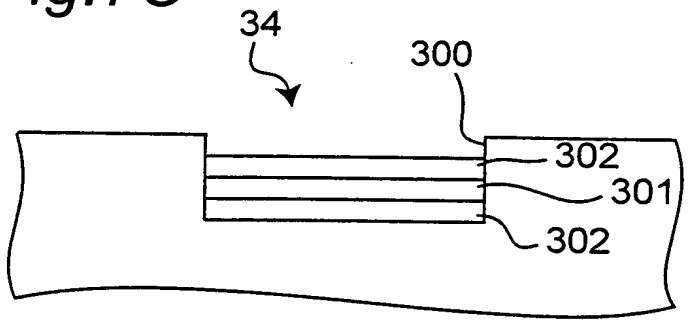

Fig.8

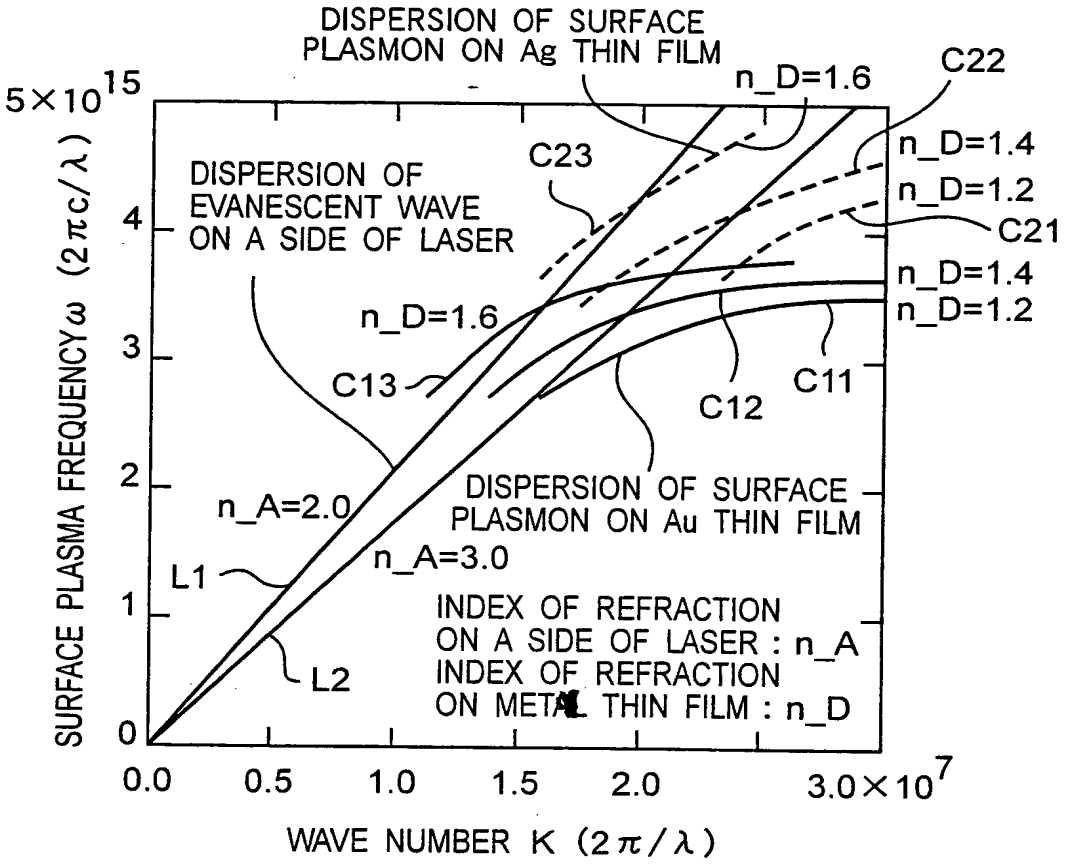
DISPERSION OF SURFACE PLASMON ON Ag THIN FILM
n_D=1.6
C22
n_D=1.4
n_D=1.2
C21
C23
DISPERSION OF EVANESCENT WAVE ON A SIDE OF LASER
n_D=1.4
n_D=1.2
n_D=1.6
C13
C12
C11
DISPERSION OF SURFACE PLASMON ON Au THIN FILM
n_A=2.0
n_A=3.0
L1
L2
INDEX OF REFRACTION ON A SIDE OF LASER : n_A
INDEX OF REFRACTION ON METAL THIN FILM : n_D
SURFACE PLASMA FREQUENCY ω (2πc/λ)
5×10^15
4
3
2
1
0
0.0
0.5
1.0
1.5
2.0
3.0×10^7
WAVE NUMBER K (2π/λ)

Fig.9A

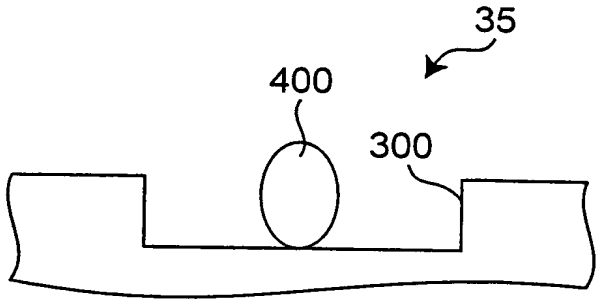

Fig.9B

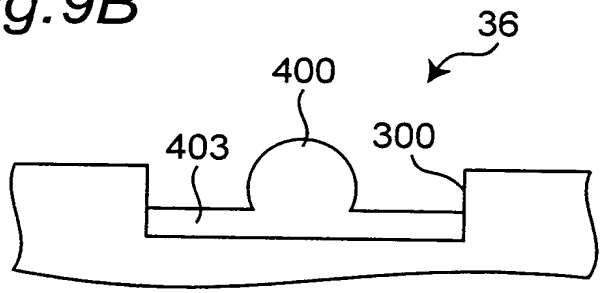

Fig.9C

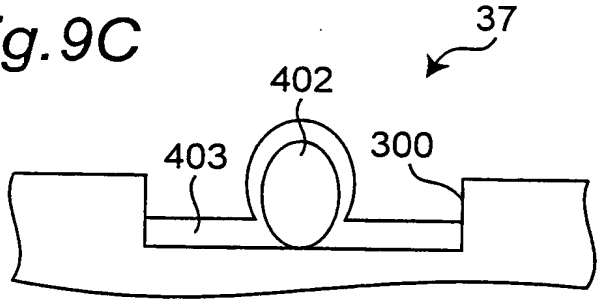

Fig.10A

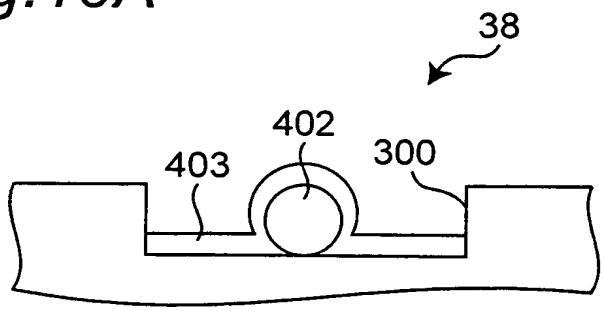

Fig.10B

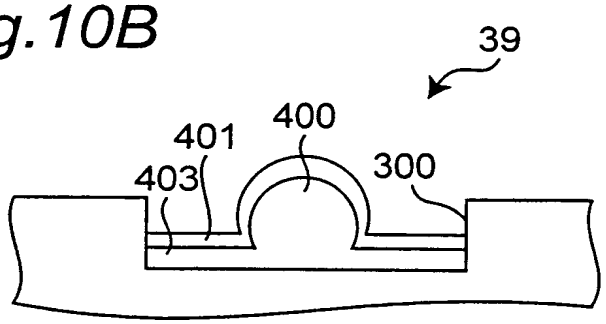

Fig.10C

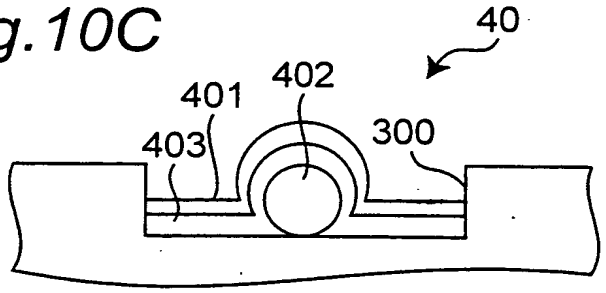
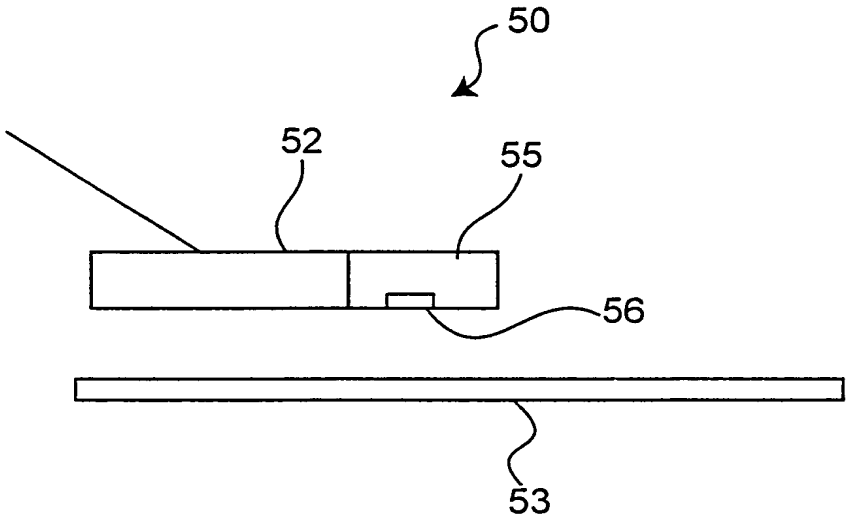
Fig.11